CLAIMS

What is claimed is.

1. A process comprising:

first forming an imprinted first polymer disposed upon a substrate under conditions to increase the glass transition temperature (T_G) of the first polymer; and

subsequently thermal curing an imprinted subsequent polymer disposed over the first polymer.

2. The process of claim 1, before subsequently thermal curing, the process further including:

subsequently thermal imprinting the subsequent polymer, under conditions to increase the T_G of the second polymer.

3. The process of claim 1, wherein subsequently thermal curing includes a single thermal cure, selected from mircrowave radiation, infrared radiation, and convection.

4. The process of claim 1, wherein first forming an imprinted first polymer exposes a portion of the substrate.

5. The process of claim 1, wherein first forming an imprinted first polymer exposes a portion of the substrate to form a first topology, further including:

forming a first metallization within a recess in the first topology.

6. The process of claim 1, wherein subsequently thermal curing is carried out under conditions to heat the subsequent polymer at a greater rate than the substrate.

7. The process of claim 1, further including:

first imprinting the first polymer to form a first topology, wherein first imprinting exposes a portion of the substrate; and

subsequently imprinting the subsequent polymer to form a second topology, wherein the second topology exposes a portion of the first polymer.

8. The process of claim 1, further including:

first imprinting the first polymer to form a first topology, wherein first imprinting exposes a portion of the substrate;

forming a first metallization within a recess in the first topology;

subsequently thermal imprinting the subsequent polymer to form a second topology, under conditions to increase the T_G of the second polymer, wherein the second topology exposes a portion of the first polymer; and

forming a subsequent metallization within a recess in the subsequent topology.

9. The process of claim 1, wherein the substrate includes an upper surface and a lower surface, wherein the first polymer is disposed upon the upper surface, wherein the first polymer includes a cured polymer upper first film, wherein the second polymer includes a cured polymer upper second film, and upon the lower surface, the process further including:

first thermal curing a lower first polymer under conditions to heat the lower first polymer at greater rate than the substrate; and

subsequently thermal curing an imprinted subsequent lower polymer disposed over the lower first polymer.

10. The process of claim 1, wherein the first polymer is formed over the substrate by depositing a prepolymer selected from a resin, a cyanate ester, a polyimide, a polybenzoxazole, a polybenzimidazole, a polybenzothiazole, and combinations thereof.

11. The process of claim 1, wherein the cured polymer first film includes a film-to-substrate thickness ratio selected from about one-tenth, one-eighth, one-fifth, one-fourth, one-third, and one-half the thickness of the substrate.

12. The process of claim 1, wherein the first polymer is formed over the substrate by depositing a prepolymer selected from a resin, a cyanate ester, a polyimide, a polybenzoxazole, a polybenzimidazole, a polybenzothiazole, and combinations thereof, and wherein the cured polymer first film includes a film-to-substrate thickness ratio selected from about one-tenth, one-eighth, one-fifth, one-fourth, one-third, and one-half the thickness of the substrate.

13. The process of claim 1, further including:

in situ testing the substrate while attached as part of an array of substrates.

14. A process comprising:

first forming an imprinted first polymer disposed upon a substrate under conditions to increase the glass transition temperature (T_G) of the first polymer;

second forming an imprinted second polymer upon the imprinted first polymer to form a second topology including a second recess; and

subsequently thermal curing the imprinted subsequent polymer disposed over the first polymer, wherein subsequently thermal curing forms a cured polymer upper first film from the imprinted first polymer and a cured polymer upper second film from the imprinted second polymer.

15. The process of claim 14, before second forming, further including:

forming a first conductive material in the first recess; and

forming a second conductive material in the second recess.

16. The process of claim 14, further including:

forming a first conductive material in the first recess, wherein forming a first conductive material is selected from blanket depositing and electroless plating; and after second curing

forming a second conductive material in the second recess, wherein forming a second conductive material is selected from blanket depositing and electroless plating.

17. The process of claim 14, wherein the first polymer is formed over the substrate by depositing a prepolymer selected from a resin, a cyanate ester, a polyimide, a polybenzoxazole, a polybenzimidazole, a polybenzothiazole, and combinations thereof.

18. The process of claim 14, wherein the cured polymer first film is in a film-to-substrate thickness ratio selected from about one-tenth, one-eighth, one-fifth, one-fourth, one-third, and one-half the thickness of the substrate.

19. The process of claim 14, wherein the first polymer is formed over the substrate by depositing a prepolymer selected from a resin, a cyanate ester, a polyimide, a polybenzoxazole, a polybenzimidazole, a polybenzothiazole, and combinations thereof, and wherein the cured polymer first film is in a film-to-substrate thickness ratio selected from about one-tenth, one-eighth, one-fifth, one-fourth, one-third, and one-half the thickness of the substrate.

20. The process of claim 14, wherein subsequently thermal curing is carried out under conditions to heat the first polymer at greater rate than the substrate.

21. A method comprising:

assembling a die to a mounting substrate, wherein the mounting substrate includes:

a first thermally imprinted cured polymer first film disposed upon a substrate; and

a subsequently thermally imprinted cured polymer subsequent film disposed over the first cured polymer first film.

22. The method of claim 21, wherein assembling a die to a mounting substrate is selected from assembling a processor to a mother board, assembling a processor to a mezzanine board, assembling a processor to an expansion card, assembling a memory chip to a board, assembling a digital signal processor to a board, assembling a micro-controller to a board, assembling an application specific integrated circuit to a board, and combinations thereof.

23. The method of claim 21, wherein the cured polymer first film includes a first topology that exposes a portion of the substrate, wherein a first metallization is disposed within a recess in the first topology; wherein the cured polymer second film includes a second topology, wherein a subsequent metallization is disposed within a recess in the subsequent topology, the method further including:

forming an electrical bump in contact with the subsequent metallization; and

coupling the electrical bump with the die.

24. The method of claim 21, wherein the first thermally imprinted polymer is imprinted under conditions to increase the glass transition temperature (T_G) of the first polymer, and wherein the subsequently thermally imprinted polymer is imprinted under conditions to increase the T_G of the subsequent polymer.

25. An intermediate system comprising:

a substrate at a substrate temperature;

a cured polymer first film at a first glass transition temperature (T_G); and

an intermediate polymer second film at a second T_G, wherein the cured

polymer second film is disposed above and on at least a portion of the cured polymer first film, and wherein the second T_G is less than the first T_G.

26. The intermediate system of claim 25, wherein the cured polymer first film is selected from a resin, a cyanate ester, a polyimide, a polybenzoxazole, a polybenzimidazole, a polybenzothiazole, and combinations thereof.

27. The intermediate system of claim 25, wherein the cured polymer first film is in a film-to-substrate thickness ratio selected from about one-tenth, one-eighth, one-fifth, one-fourth, one-third, and one-half the thickness of the substrate.

28. A structure comprising:

a substrate;

a cured polymer first film disposed above the substrate, wherein the cured polymer first film exhibits a first topology, and a minimum feature within the first topology, and wherein the minimum feature exhibits a deviation from planarity of 10 percent or less; and

a cured polymer second film disposed above and on the cured polymer first film, wherein the cured polymer second film exhibits a second topology.

29. The structure of claim 28 further including:

an electronic device electrically coupled to the structure.

30. The structure of claim 28, further including:

an electronic device electrically coupled to the structure, wherein the structure is disposed in one of a computer, a wireless communicator, a hand-held device, an automobile, a locomotive, an aircraft, a watercraft, and a spacecraft.